

ABSTRACT

One of the impediments to the treatment of some human brain tumors (e.g. gliomas) has been the degree to which they expand, migrate widely, and infiltrate normal tissue. We demonstrate that a clone of multipotent neural progenitor stem cells, when implanted into an experimental glioma, will migrate along with and distribute themselves throughout the tumor in juxtaposition to widely expanding and aggressively advancing tumor cells, while continuing to express a foreign reporter gene. Furthermore, drawn somewhat by the degenerative environment created just beyond the infiltrating tumor edge, the neural progenitor cells migrate slightly beyond and surround the invading tumor border. When implanted at a distant site from the tumor bed (e.g., into normal tissue, into the contralateral hemisphere, into the lateral ventricles) the donor neural progenitor/stem cells will migrate through normal tissue and specifically target the tumor cells. These results suggest the adjunctive use of neural progenitor/stem cells as a novel, effective delivery vehicle for helping to target therapeutic genes and vectors to invasive brain tumors that have been refractory to treatment.

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